

What is claimed is:

- 1 1. A voltage control circuit for a common mode voltage,  
2 comprising:  
3 a detection circuit for detecting a common mode voltage  
4 from differential output terminals of a differential output  
5 circuit, and outputting a detected voltage based on the common  
6 mode output voltage; and  
7 an operational transconductance circuit for inputting the  
8 detected voltage and a first reference voltage, and  
9 inputting/outputting currents based on a voltage difference  
10 between the detected voltage and the first reference voltage,  
11 wherein the currents inputted/outputted to/from the  
12 operational transconductance circuit are inputted/outputted  
13 to/from a differential output of the differential output circuit.
- 1 2. The voltage control circuit for the common mode voltage  
2 according to claim 1, wherein the first reference voltage is  
3 a constant voltage determined in advance.
- 1 3. The voltage control circuit for the common mode voltage  
2 according to claim 1, wherein the currents inputted/outputted  
3 to/from the operational transconductance circuit are flowed into  
4 the differential output to decrease the common mode output  
5 voltage from the differential output terminals, and led from  
6 the differential output to increase the common mode output  
7 voltage from the differential output terminals.
- 1 4. The voltage control circuit for the common mode voltage

2 according to claim 1, wherein the currents inputted/outputted  
3 to/from the operational transconductance circuit are  
4 inputted/outputted to/from the respective differential output  
5 terminals.

1 5. The voltage control circuit for the common mode voltage  
2 according to claim 1, wherein the operational transconductance  
3 circuit inputs/outputs multiple currents of the same phase, and  
4 the respective multiple currents of the same phase are  
5 inputted/outputted to/from the respective differential output  
6 terminals.

1 6. The voltage control circuit for the common mode voltage  
2 according to claim 1, wherein the currents inputted/outputted  
3 to/from the operational transconductance circuit are flowed into  
4 the differential output terminals when the common mode output  
5 voltage from the differential output terminals is larger than  
6 a predetermined voltage, and led from the differential output  
7 terminals when the common mode output voltage from the  
8 differential output terminals is smaller than the predetermined  
9 voltage.

1 7. A method for controlling a common mode voltage of a differential  
2 output, comprising the steps of:

3 detecting a common mode voltage of differential output  
4 terminals;

5 outputting a detected voltage based on the common mode  
6 voltage; and

7       inputting/outputting currents to/from the differential  
8   output terminals in accordance with a voltage difference between  
9   the detected voltage and a first reference voltage.

1   8. The method for controlling the common mode voltage according  
2   to claim 7, wherein currents fed back to the differential output  
3   terminals are multiple currents of the same phase  
4   inputted/outputted to/from the respective differential output  
5   terminals.

1   9. The method for controlling the common mode voltage according  
2   to claim 7, wherein the currents fed back to the differential  
3   output terminals are flowed into the differential output  
4   terminals to decrease the common mode voltage from the  
5   differential output terminals, and led from the differential  
6   output terminals to increase the common mode voltage from the  
7   differential output terminals.